What is SARE?

Since 1988, the Sustainable Agriculture Research & Education (SARE) program has been the go-to USDA grants and outreach program for farmers, ranchers, researchers and educators who want to develop innovations that improve farm profitability, protect water and land, and revitalize communities. To date, SARE has awarded over $410 million to more than 8,827 initiatives.

SARE is grassroots with far-reaching impact

Four regional councils of expert practitioners set priorities and make grants in every state and island protectorate.

SARE communicates results

SARE shares project results by requiring grantees to conduct outreach and grower engagement; and by maintaining an online library of practical publications, grantee-produced information products and other educational materials.

SARE
Sustainable Agriculture Research & Education

www.sare.org

SARE: Advancing the Frontier of Sustainable Agriculture in...

South Carolina

Project Highlight: *Fruit Bagging Reduce Reliances on Pesticides*

When Clemson University fruit specialist Juan Carlos Melgar suggested putting a paper bag over a peach to detract insects and diseases during production, farmers laughed. But when his SARE-funded trials showed that the technique protects the fruit from devastating brown rot, marauding insects like plum curculio and even hungry birds, producers and backyard growers started paying attention.

Researchers found that bagging peaches between petal fall and harvest reduces pesticide use while increasing yields and maintaining flavor. Even though it involves more labor, Melgar estimated that bagging can increase revenue by $95 per tree in an organic system when the fruit is sold directly to consumers. “We’ve gotten a lot of positive responses from farmers all over the country as a result of the research study,” said Melgar.

Fruit bagging for protection is a common strategy in Asia. With South Carolina ranked second in the nation behind California in peach production at 77,000 tons, researchers at Clemson felt that applying the technique to orchards was a worthwhile endeavor because peach growers in the southeastern U.S. face very high pest and disease pressures. Melgar is taking this research to a regional level with a newly acquired $1 million USDA-NIFA grant, applying the technique to more orchards in South Carolina, Georgia and Florida.

For more information on this project, see sare.org/projects, and search for project number OS16-094.

SARE in South Carolina

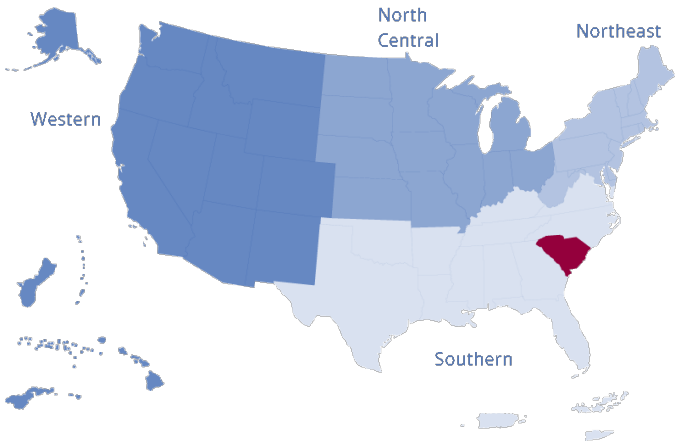
southern.sare.org/state-profiles/south-carolina/

$3,598,225 in total funding

25 grant project

(since 1988)

For a complete list of grant projects state by state, go to www.sare.org/state-summaries



SARE in South Carolina

Grants awarded 2019–2024

Total awards: 25 grants

4	Farmer/Rancher
9	Research and Education
4	Professional Development Program
1	On Farm Research/Partnership
4	Graduate Student
3	Education Only

Total funding: $3,598,225

$55,435	Farmer/Rancher
$3,019,263	Research and Education
$310,644	Professional Development Program
$20,000	On Farm Research/Partnership
$57,383	Graduate Student
$135,500	Education Only

Find a complete list of projects on page 3.

Farmer and rancher impacts 2019–2024

SARE grantees have reported the following impacts from their projects:

1,235 farmers participated in a SARE-funded project

157 farmers reported a change in knowlege, awareness, skills or attitude

27 farmers changed a practice

Learn about local impacts at: southern.sare.org/sare-in-your-state/south-carolina/

Contact Your SARE State Coordinator

SARE sustainable ag coordinators run state-level educational programs for Extension and other ag professionals, and many help grant applicants and recipients with planning and outreach. Visit southern.sare.org/state-profiles/south-carolina/ to learn more.

John Andrae
Clemson University
(864) 656-4080
jandrae@clemson.edu

Joshua Idassi
South Carolina State University
(803) 878-9038
jidassi@scsu.edu

Jonathan Windham
Clemson University
(843) 519-0487
jwindha@clemson.edu

For detailed information on SARE projects, go to **www.SARE.org**

SARE is funded by the USDA's National Institute of Food and Agriculture (NIFA).

This report includes summaries of competitive grant programs only. Some competitive grant programs that are no longer offered may be included or excluded from the totals in this report depending on the grant program and SARE region.

AGRICULTURE PROJECTS FUNDED IN SOUTH CAROLINA

by USDA's
Sustainable Agriculture Research and Education (SARE) Program

www.southernsare.org

South Carolina has been awarded $5,520,400 grants to support 79 projects, including but not limited to, 16 research and/or education projects, 13 professional development projects and 21 producer-led projects. South Carolina has also received additional SARE support through multi-state projects.

RESEARCH AND EDUCATION GRANTS

Project #	Project Title	SARE Support	Project Leaders
LS24-395	Empirical assessment of grain sorghum resiliency, productivity, and profitability in the southeastern USA	$399,974	Dr.Richard Boyles, III Clemson University Dr.Zachary Brenton Carolina Seed Systems Dr.Joseph Roberts Clemson University Anastasia Thayer Clemson
LS23-379	Flipping the cages on sustainable aquaculture: a study on oyster aquaculture technique and policy to reduce pathogens	$358,557	Sarah Pedigo South Carolina Sea Grant Consortium Matthew Gorstein South Carolina Sea Grant Consortium Dr.Peter Kingsley-Smith South Carolina Department of Natural Resources Marine Resources Mike Marshall South Carolina Department of Health and Environmental Control Dr.Matthew Nowlin College of Charleston
LS22-366	Development of Sustainable Strategies for Managing Bacterial Diseases and Improving Tree Health in the Peach Production System	$371,000	Hehe Wang Clemson University Juan Carlos Melgar Clemson University Guido Schnabel Clemson University Dr.Michael Vassalos Clemson University Dr.Rongzhong Ye Clemson University

LS22-369	Establishing an Organic Watermelon Industry in South Carolina	$369,999	Matthew Cutulle Clemson University, CREC Dr.Bhupinder Farmaha Clemson University Dr.Shaker Kousik USDA-ARS- United States Vegetable Lab Dr.Amnon Levi USDA-ARS-United States Vegetable Lab Brian Ward
LS22-374	Cover crop inter-seeding in organic corn production to reduce resource inputs and soil disturbance and enhance pest control and farm profitability	$371,000	Dr.Sruthi Narayanan Clemson University Dr.Carmen Blubaugh University of Illinois Dr.Joshua Idassi South Carolina State University Dr.Dave Lamie Clemson University Dr.Meghnaa Tallapragada Temple University Dr.Rongzhong Ye Clemson University
LS21-355	Gullah/Geechee Agro-Culture: Sustaining Culture to Sustain Agriculture in the Lowcountry	$341,346	Dr.Najmah Thomas University of South Carolina Beaufort
LS21-359	Strengthening Farmer-consumer Connections for Sustainable Agricultural Systems	$213,954	Courtney Quinn Furman University Dr.Karen Allen Furman University Dr.John Quinn Furman University
LS19-306	Utility of Anaerobic Soil Disinfestation and Organic Herbicides for Weed and Disease Management in Organic Solanaceous Vegetable Systems	$293,470	Matthew Cutulle Clemson University, CREC
LS19-305	Incorporating Natural, Non-toxic Arthropod Resistant Tomato Varieties into Southern Production Systems	$299,963	Juang-Horng Chong Clemson University
LS16-273	Improving Silvopasture Systems in the South: Identification of Suitable Forage Crops and Enhancement of Environmental Quality in Upland Forests	$135,487	Dr.John Quinn Furman University

LS09-217	Improvement of the safety of food handling practices on small farms	$200,000	Dr.Paul Dawson Clemson University
LS06-188	Expanding the grazing season for sustainable year-round forage-finished beef production	$163,000	Susan Duckett Clemson University
LS04-213	Development and Integration of Sustainable Agriculture Core Curriculum Training into the Southern Region Extension Education System	$241,000	Dr.Geoff Zehnder Clemson University
LS03-157	Suppression of weeds and other pests in fresh market vegetables using wild radish cover crop	$173,125	Jason Norsworthy Clemson Univeristy
LS03-155	Creating a value chain system for local and regional farm products	$19,310	Dr.Geoff Zehnder Clemson University
LS93-054	Evaluation of Low-Input, No-Till, No-Herbicide Continuous Grazing System for Dairy Cows	$118,911	Jean Bertrand Clemson University

PROFESSIONAL DEVELOPMENT PROGRAM GRANTS

Project #	Project Title	SARE Support	Project Leaders
SPDP23-021	Indigo and Companion Food Crops: Opportunities for Limited Resource Farmers in the Lowcountry of South Carolina and Georgia	$79,500	Donna Hardy ICIC
SPDP22-15	Training Educators in the Southern Region Using Aquaponics as a Sustainable Agriculture Solution	$71,322	Dr.Lance Beecher Clemson University Ben Calhoun Greenwood Area SBDC Roland McReynolds Carolina Farm Stewardship Association

SPDP21-01	Train the Trainers: Reducing impacts from harmful algal blooms in livestock water sources in South Carolina	$79,975	Dr.Debabrata Sahoo Clemson University Dr.Matthew Burns Clemson University Mark Nettles South Carolina State University, 1890 Research and Extension Heather Nix Clemson University Cooperative Extension Dr.Michael Vassalos Clemson University Sarah White Clemson University
ES19-150	Advanced Soil Health Training for South Carolina Agriculture Professionals	$79,847	Kelly Flynn Clemson University
ES17-137	Wholesale Success: Building the capacity of farmers to meet demand for locally and sustainably grown produce	$78,008	Dr.Geoff Zehnder Clemson University
ES13-117	Training in Renewable Energy Systems for Small Farms to Reduce Energy Costs and Improve Profitability	$78,128	Dr.Geoff Zehnder Clemson University
ES11-108	Pollinator Conservation Short Course	$92,066	Eric Mader The Xerces Society
ES10-106	On-Farm Training in Organic Pest Management Practices for Small, Diversified Farms	$83,775	Dr.Geoff Zehnder Clemson University
ES02-064	Calhoun Fields Laboratory: A Program for Experiential Training in Organic Farming Systems	$49,926	Dr.Geoff Zehnder Clemson University
ES01-057	South Carolina Farm and Forest Land Conservation Training	$25,428	Ben Boozer Clemson Institute for Economic & Community Develop
ES97-018	The First Requirement of Agriculture Sustainability: Efficient Management of Available Resources	$60,000	Charles Q. Artis South Carolina State University, Community and Economic Development
ES97-017	Overcoming Training Obstacles: A Realistic Cost-Effective Approach	$10,000	Charles Q. Artis South Carolina State University, Community and Economic Development

LST94-006	Extending Sustainable Agriculture Concepts and Practices to Traditional Agricultural Advisors	$11,700	Jim Palmer Clemson

FARMER/RANCHER GRANTS

Project #	Project Title	SARE Support	Project Leaders
FS23-350	The Effectiveness in Attracting Oyster Spat on PVC versus Bamboo Stakes for Reef Restoration in the North Edisto River	$15,000	Steve Dierkes Barrier Island Oyster Company
FS22-341	Does reduction of nitrate inputs in pasture land treated with Chlorella vulgaris result in cost savings and healthier soil and grass?	$10,975	Dale Snyder Sweetgrass Garden Co-op
FS21-330	Does Treatment with Chlorella vulgaris Extend the Life of Tomato Plants to Increase Tomato Sales?	$14,640	Dale Snyder Sweetgrass Garden Co-op
FS20-326	Summer Cover Crops for Organic No-till Broccoli	$14,820	Sarah Belk Wild Hope Farm
FS18-309	Studying the Use of Copper to Raise Healthier Goats	$10,000	Judy Langley Judy Langley
FS17-300	Scaling Indigo Production in South Carolina	$5,965	Kathy McCullough Farmer
FS16-288	Modified Method for Roller-Crimper No Till System in the Southeast Coastal Plain	$8,327	Mary Connor Three Sisters Farm
FS14-284	Is freshwater fish compost as effective as saltwater fish compost on vegetable production?	$10,000	Dale Snyder Sweetgrass Garden Co-op
FS13-276	Shade cloth for fall bearing blackberry druplet abortion/malfunction problems in southeastern USA	$6,458	Walker Miller The Happy Berry Bunch
FS11-255	Cucumber Pollination with Bumblebees	$8,530	David MacFawn Rawl Farms
FS11-257	Is Fish Waste Compost worth the Mess and Effort?	$9,848	Dale Snyder Sweetgrass Garden Co-op

FS10-245	Forage Chicory Use in Rotational Grazing of Sheep to Reduce Intestinal Worms, Reduce Grain Supplementation, And Maximize Growth	$9,078	Kathy McCaskill Old McCaskill's Farm
FS10-247	Using Buckwheat to Attract Beneficial Insects for Crop Protection	$9,037	Daniel Parson Parson Produce
FS09-233	Dual Season Organic Asparagus Production	$9,995	Mary Connor Three Sisters Farm
FS04-184	Edamame Variety Trials for the Local Fresh Market	$4,777	Carolyn A. Prince
FS99-102	Cattle Lane Construction Alternatives That Enhance Intensive Grazing Systems	$9,850	Tom Trantham Trantham's Dairy Farm
FS98-070	Red Plastic Mulch as an Alternative to Insecticides in Production of Seedless Watermelons	$7,390	John Frazier
FS98-079	Demonstration of a Low-Input Diversified Small Farm Operation	$9,200	Theodore Nesmith
FS95-033	Cover Crops in Integrated Vegetable Production Systems	$9,285	Charles Wingard W.P. Rawl & Sons Farms
FS94-016	Clover Cover Crops, Weed Management and Consumer Tolerance to Insect Damage	$4,710	Horace & Shaw Skipper The Berry Patch
FS94-005	Vegetable Marketing Strategies for a Small Farm Co-op	$10,000	Curtis Inabinett Sea Island Farmers Co-op

GRADUATE STUDENT GRANTS

Project #	Project Title	SARE Support	Project Leaders
GS23-283	Potential of Cover Crop Influence on Water Repellency and the Sustainability of Southern U.S. Soils	$12,042	Dr.Dara Park Clemson University Payton Davis Clemson University
GS23-274	Enhancing the Biological Control of the Diamondback Moth (Plutella xylostella) Through Habitat Management for Sustainable Brassica Production	$12,341	Dr.Tom Bilbo Clemson University Amna Ghani Clemson university

GS22-263	Development and Phenotypic Evaluation of a Brassica oleracea Leafy Greens Diversity Panel	$16,500	Dr.Sandra Branham Clemson University Khushwinder Kaur Clemson University
GS22-259	PRECISION: leveraging deeP REinforCement learnIng algorithm for Sustainable IrrigatiON scheduling	$16,500	Dr.Vidya Samadi Clemson University Lisa Umutoni Clemson University
GS18-192	Cover Cropping to Improve Soil Moisture Content for the Following Cash Crop	$16,496	Dr.Sruthi Narayanan Clemson University Dr.Ricardo St. Aime Clemson University
GS17-174	Optimizing Nutritional Management in Fruit Tree Production in Southern U.S.	$16,441	Juan Carlos Melgar Clemson University Qi Zhou Clemson University
GS13-126	Weeds, Nitrogen, and Yield: Measuring the Effectiveness of an Organic No-Till System	$10,927	Dr.Geoff Zehnder Clemson University David Robb Clemson University
GS04-034	Control of Soilborne Fungi with Biofumigation	$10,000	Anthony Keinath Clemson University Samuel Njoroge Clemson University
GS04-041	Preliminary Investigation for Application of Supercritical Fluid Extraction Technology for Garlic Oil Extraction	$10,000	Dr.Terry Walker Clemson University Meidui Dong Clemson University
GS03-020	The Assessment of Conservation and Traditional Tillage Systems on Weed Dynamics, Insect Abundance, and Northern Bobwhite Quail Life and Behavioral Patterns	$10,000	William Bowerman Clemson University Derek Eggert Clemson University

ON FARM RESEARCH/PARTNERSHIP GRANTS

Project #	Project Title	SARE Support	Project Leaders
OS20-133	The Potential of Inter-seeded Cover Crops for Enhancing Soil Health and Soil Moisture Content in a Row Crop Production System	$20,000	Dr.Sruthi Narayanan Clemson University
OS18-118	Cover Cropping to Increase the Sustainability of Cropping Systems by Developing Soil Organic Matter, Improving Soil Health, and Suppressing Weed Growth	$15,000	Dr.Sruthi Narayanan Clemson University
OS17-109	Identification of Factors Involved in Peach Skin Streaking	$15,000	Guido Schnabel Clemson University

OS16-100	Getting to the Bottom of 'Bronzing', A Peach Skin Disorder Causing Severe Losses for Organic and Conventional Peach Growers	$15,000	Guido Schnabel Clemson University
OS16-096	Cover Crop Influence on Stored Soil Water Availability to Subsequent Crops	$14,995	Dr.Sruthi Narayanan Clemson University
OS16-094	Fruit Bagging as a Strategy to Reduce Reliance on Pesticides for the Production of Peaches in the Southeast	$14,967	Juan Carlos Melgar Clemson University
OS16-093	Increasing Sustainability of Peanut, Cotton, and Soybean Production Systems Through Innovative Interseeding Technology to Enhance Farm Profit and Reduce Pest Occurrence	$14,990	Daniel Anco Clemson University
OS07-035	On-Farm Use of a Hybrid Vetch Cover Crop to Reduce Fusarium Wilt in Seedless Watermelon	$9,900	Anthony Keinath Clemson University
OS03-010	Poultry Litter Research Project	$12,600	David Gunter Clemson Extension Service
OS03-013	Growing Organic Fruits and Vegetables for Local Farmer's Markets	$9,925	York Glover

SUSTAINABLE COMMUNITY INNOVATION GRANTS

Project #	Project Title	SARE Support	Project Leaders
CS12-087	Fighting Obesity in Schools By Changing Eating Habits of Students	$10,000	Robert Behr Ashley Ridge High School
CS10-078	GrowFood Carolina	$10,000	Lisa Turansky South Carolina Coastal Conservation League
CS08-065	Marshview Community Organic Farms – Young Farmers of the Lowcountry	$9,700	Sara Reynolds Marshview Comunity Organic Farm
CS08-064	Growing the Manning Farmer's Market	$5,050	Rebecca Rhodes City of Manning
CS07-059	Chicora Farmers Market	$6,300	Amanda Crump Metanoia CDC

CS07-058	Farmers Market Support Activities	$2,570	Grady Sampson

EDUCATION ONLY GRANTS

Project #	Project Title	SARE Support	Project Leaders
EDS23-054	Gullah/Geechee Heir Property Initiative: Sustaining Heir Property in the Lowcountry Through Sustainable Agriculture	$40,000	Willie Turral Gullah Geechee Initiative Foundation
EDS23-047	Young Tree Farmers Camp	$46,000	Dr.Jennie Stephens Center for Heirs' Property Preservation Steve Patterson Center for Heirs' Property Preservation
EDS22-43	Wholesale Market Success For Limited Resource Gullah Farmers	$49,500	Walter Mack Gullah Farmers Cooperative Association

Total funding from the USDA SARE program to South Carolina
$5,520,400

For further information on projects, contact 770-412-4787 or ssare@uga.edu.
Sustainable Agriculture Research and Education (SARE) is funded by USDA's National Institute of Food and Agriculture (NIFA).